

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> :G01N 33/487, 35/00, 35/10 // C12M 1/34,  
C12N 13/00

A1

(11) International Publication Number:

WO 00/34776

(43) International Publication Date:

15 June 2000 (15.06.00)

(21) International Application Number: PCT/GB99/04073

(22) International Filing Date: 6 December 1999 (06.12.99)

(30) Priority Data:

9826742.0	5 December 1998 (05.12.98)	GB
9906053.5	17 March 1999 (17.03.99)	GB
9905998.2	17 March 1999 (17.03.99)	GB

(71) Applicant (for all designated States except US): CENES LIMITED [GB/GB]; Compass House, Vision Park, Chivers Way, Histon, Cambridge CB4 9ZR (GB).

(72) Inventors; and

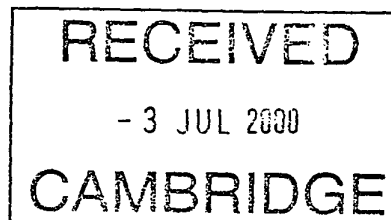
(75) Inventors/Applicants (for US only): BYRNE, Nicholas, Gerard [GB/GB]; 31 Chivers Road, Haverhill, Suffolk CB9 9DS (GB). OWEN, David, Geraint [GB/GB]; 2 The Terrace, The Street, Kent DA12 3DF (GB).

(74) Agent: DAVIES, Jonathan, Mark; Reddie &amp; Grose, 16 Theobalds Road, London WC1X 8PL (GB).

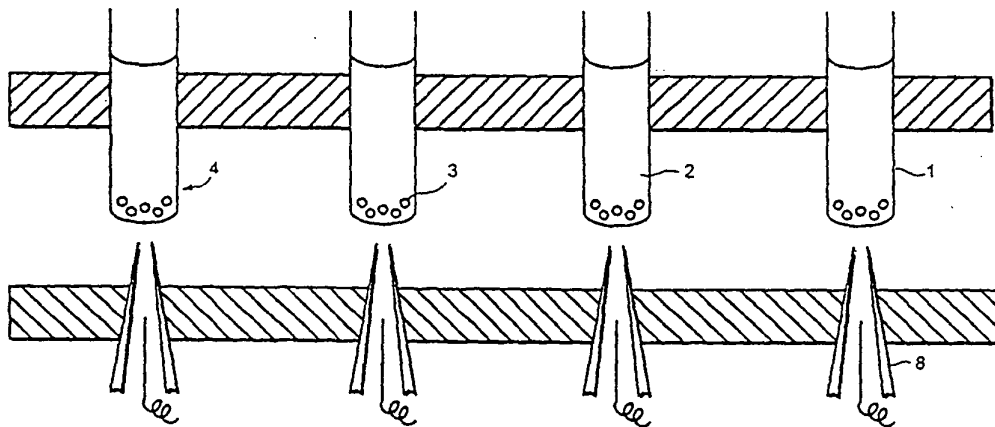
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.



(54) Title: INTERFACE PATCH CLAMPING



(57) Abstract

The invention provides a novel development of the conventional patch clamp technique for measurement of whole cell electrical activity. The invention provides for one or more cell or cells to be suspended in a liquid medium at a liquid/air interface (by virtue of the effect of surface tension at the interface) whereby the cell or cells are accessible at the interface to a microstructure electrode (such as a pipette tip) to which a cell can attach to form an electrical seal, for the purpose of whole cell voltage clamp recording. According to the invention the electrode can be caused to form a high resistance electrical seal with a cell suspended in the liquid at the liquid/air interface without the need to press the cell against a solid support surface. The invention also provides apparatus for carrying out the interface patch clamp technique and control logic for operating a computer to carry out the interface patch clamp technique.